

Document Title or Description (max. 254 characters): Circle: Same as cover (or fill in below)

Transmittal of Excel file giving individual fireproofing thickness data included in the tenant alteration reports (30-P)

Include work order no. and floor no. if applicable

Roll #:

Doc. ID (report #, dwg. #):

Document Date:

April 7 2004

Document Author Name:

Frank Lombardi

Author Organization:

KEYWORDS - HIGHLIGHT ALL THAT APPLY

Level 1

| | | |
|-----------------------|--------------------------|---------------------------|
| Bankers Trust | Project 5 | WTC 3 - Marriott Hotel |
| Below Grade | Project 6 | WTC 4 - South Plaza Bldg. |
| Concourse | Project 7 | WTC 5 - North Plaza Bldg. |
| Electrical Substation | Project 8 | WTC 6 - Customs House |
| Liberty Plaza | WFC 1 - Oppenheimer Dow | WTC 7 |
| PATH Station | WFC 2 - Tower B | WTC Complex |
| Project 1 | WFC 3 - American Express | WTC Plaza |
| Project 2 | WFC 4 - Tower D | |
| Project 3 | WTC 1 - North Tower | Add |
| Project 4 | WTC 2 - South Tower | |

Level 2

| | | | |
|--------------------------|-----------------|----------------------------|--------------------|
| Accident analysis & risk | Fire protection | Misc. Performance Problems | Tenant alterations |
| Architectural | Fire service | News coverage | Tenant Space |
| Data request | Landscaping | Police | Add |
| Emergency management | Management | Security | |
| Evacuation | Mech./elec. | Structural | |

Level 3

| | | | |
|-----------------------|--------------------------|-----------------------------|-------------------|
| 1993 explosion | Deck | Hat truss | Shop drawings |
| A/E fitout | Deflection | Human comfort | Shortening |
| A-242 | Demolition | HVAC | Slab |
| A-36 | Design | Index | Slurry wall |
| A-497 | Detailing | Inspection | Smoke control |
| Aircraft impact | Doors | Insulation | Smoke test |
| Air cooled condensers | Drawings | Job number | Spandrel beam |
| Analysis | Eastern States Steel | Joist | Specifications |
| Angles | Egress | L-50 | Splices |
| Antenna | Elevator | Lighting | Sprinkler |
| Artifacts | Emergency communications | Loads | Stability |
| Asbestos | Equipment | Maintenance | Stairways |
| Base plate | Erection marks | Marking | Standards |
| Beams | Escalator | Mesh reinforcement | Steel |
| Bid Invitation | Expansion joint | Mill inspection | Steel composition |
| Bow tie | Exterior columns | Model | Stiffness |
| Bracing | Fabrication | Mullion | Structural review |
| Bridging truss | Family member | Operations | Survivor |
| Calculations | Field survey | Paint | Tenant list |
| Carpet | Fire alarms | Partition layout | Testing |
| Ceilings | Fireproofing | Partitions | Tie |
| Certification | Fire spread | Photos | Tolerances |
| Chillers | Fire testing | Pipes | Transfer Girders |
| Cladding | Flag Pole | Plumbing | Triad |
| Collapse | Flammability | Prestressing | Truss |
| Columns | Floor | Probability, uncertainty | Vestibule |
| Communication systems | Floor load | Quality control | Vibration |
| Composite truss | Floor slab | Ramp | Walls |
| Computer output | Floor system | Reinforcing (strengthening) | Water supply |
| Computer program | Floor trusses | Renovation | Weather |
| Concrete | Foundations | Repair | Weight |
| Connections | Fracture | Research & Development | Weld detail |
| Construction | Frame | Roof | Weld size |
| Contract | Frame analysis | Safety | Welding |
| Core beams | Frequency | Schedule | Wind |
| Core columns | Fuel | Sculpture | Windows |
| Cranes | Furniture layout | Security system | Yield strength |
| Criteria | H Generators | Shear knuckle | |
| Dampers | Guidelines | Shear test | Add |
| Debris | Gypsum board | Shear Stud | |

Terri McAllister, Monica Starnes, 08:35 AM 4/8/2004, Fwd: Reply to NIST's 3/30/04 Request for Add

To: Terri McAllister, Monica Starnes
 From: "John L. Gross" <jgross@nist.gov>
 Subject: Fwd: Reply to NIST's 3/30/04 Request for Additional Information
 Cc:
 Bcc:
 Attached: C:\Program Files\Qualcomm\Eudora\Attach\3-30-04 NIST request.doc; C:\Program Files\Qualcomm\Eudora\Attach\WTC Fireproofing-Discrete Values.doc; C:\Program Files\Qualcomm\Eudora\Attach\WTC Fireproofing Data.xls;

Terri and Monica,

Here is the Port Authority's response to my recent request.

John

X-Sieve: CMU Sieve 2.2
 From: "Lombardi, Frank" <flombard@panynj.gov>
 Sender: "Keough, Patricia" <pkeough@panynj.gov>
 To: "jgross@nist.gov" <jgross@nist.gov>
 Cc: "Begley, James" <jbegley@panynj.gov>, "Bhol, Saroj" <sbhol@panynj.gov>, "Bognacki, Casimir" <cbognack@panynj.gov>, "Englot, Joseph" <jenglot@panynj.gov>, "Groark, Thomas" <tgroark@panynj.gov>, "Lin, C. John" <jlin@panynj.gov>, "Reiss, Alan" <areiss@panynj.gov>
 Subject: Reply to NIST's 3/30/04 Request for Additional Information
 Date: Wed, 7 Apr 2004 10:04:40 -0400
 X-Mailer: Internet Mail Service (5.5.2653.19)
 X-MailScanner:
 X-MailScanner-From: pkeough@panynj.gov

Attached is correspondence that responds to the questions asked of Joe Englot in your March 30th letter to him. In addition to the Port Authority memo from Cas Bognacki to Joe dated 4/7/04 (attached), there is also an Excel file with data. Please note that the Excel file contains two workbooks: WTC 1 and WTC 2.

<<3-30-04 NIST request.doc>> <<WTC Fireproofing-Discrete Values.doc>>
 <<WTC Fireproofing Data.xls>>

CONFIDENTIAL AND PRE-DECISIONAL COMMUNICATION

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Leader, Structures Group
National Institute of Standards and Technology
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MATERIALS ENGINEERING DIVISION

TO: J. Englot
 FROM: C. Bognacki
 DATE: September 19, 2005
 SUBJECT: **DISCRETE VALUES FOR HISTORICAL WTC FIREPROOFING THICKNESS AVERAGES**

COPY TO: D. Bailey, J. Bullard, R. Gill

Closer examination of the raw data supporting the 11/24/99 (1 WTC 79th Floor) fireproofing thickness average reported to the NIST showed additional readings recorded on a separate row of the field report. A total of 12 values were actually taken from the truss, not eight, which showed an actual average of 2.21 inches. The average apparently was miscalculated by using only the first ten values and then erroneously dividing by nine, which resulted in the reported average of 2.36 inches. All 12 values are listed in the table on the right, which shows that all results were greater than 1.5 inches. Average values were not more carefully checked since the individual readings were substantially above the required thickness.

As requested in the 3/30/04 NIST correspondence, the enclosed spreadsheet has been prepared by summarizing all available raw data for the floors requested. Again, most discrete and average measurements are substantially greater than the 1.5-inch thickness requirement necessary to meet the 2-hour rating. Only testing performed back in 1995 on WTC 2, when thickness requirements were established at 0.5 inches, showed averages of less than 1.5 inches.

| <u>Thickness,</u> <u>Inches</u> | <u>Reading</u> |
|------------------------------------|----------------|
| 2 1/8 | 1 |
| 2 1/4 | 2 |
| 2 1/2 | 3 |
| 2 3/4 | 4 |
| 1 1/2 | 5 |
| 1 3/4 | 6 |
| 1 3/4 | 7 |
| 2 1/4 | 8 |
| 2 1/8 | 9 |
| 2 1/4 | 10 |
| 2 1/2 | 11 |
| 2 3/4 | 12 |
| <hr/> | |
| 26 1/2 | Mean: 2.21 |

Please feel free to contact me at (201) 216-2984 if there are any questions concerning these results.

C. Bognacki, P.E.
 General Manager
 Materials Engineering Division

Att.(1)



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-0001

WTCI-682-P

30 March, 2004

Joe Englot
Port Authority of New York and New Jersey

X

Dear Joe:

I would like to follow up on the Port Authority's responses to my letter of March 11, 2004. In that letter, item #4 was related to a request for individual measurements of fireproofing thickness, rather than averages. The Port Authority's response dated March 23, 2004, provided thickness measurement data for only one location (the 79th floor of WTC 1).

First, the average of the eight individual measurements reported in the Port Authority's letter is 2.11 in. while the Construction Audit Report indicated an average of 2.36 in. Either the individual measurements are incorrect or they are not from the same Construction Audit Report. Please clarify.

In addition, NIST's request was for all individual fireproofing thickness measurements from all locations tested for floors with upgraded fireproofing (floors 92-100 of WTC 1 and floors 77-78, 88-89, 92, 96-97 of WTC 2). Please provide the eight individual thickness measurements for all locations tested in the floors of interest.

Thank you in advance for your prompt attention to these questions.

With regards,

John L. Gross, Ph.D., P.E.
Leader, Structures Group

| Date of Report | 4/2/1997 | 4/2/1997 | 4/2/1997 | 4/28/1998 | 4/28/1998 | 4/28/1998 | 4/28/1998 | 4/28/1998 |
|-----------------------------------|---------------|---------------|---------------|---------------|------------------------|---------------|---------------|---------------|
| To: | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz |
| From: | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard |
| Building | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC |
| Floor | 92 | 92 | 92 | 93 | 93 | 93 | 93 | 93 |
| Location/Test Area | 331 south | 249 east | 411 west | 337 south | 337 south (re-test) | 233 east | 137 north | 335 south |
| Minimum Thickness Required | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Reported Mean, inches | 3.05 | 2.83 | 2.78 | 1.80 | 1.95 | 1.84 | 2.25 | 1.80 |
| Discrete Gage #1 | 3 1/4 | 3 | 2 7/8 | 1 7/8 | 2 1/8 | 1 1/2 | 2 1/2 | 1 7/8 |
| Discrete Gage #2 | 3 | 2 1/2 | 3 | 1 3/4 | 2 | 1 7/8 | 2 1/4 | 2 |
| Discrete Gage #3 | 3 | 2 3/4 | 2 1/2 | 1 5/8 | 1 7/8 | 1 3/4 | 1 7/8 | 1 3/4 |
| Discrete Gage #4 | 3 1/2 | 3 | 3 | 1 3/4 | 1 3/4 | 2 1/8 | 1 5/8 | 1 3/4 |
| Discrete Gage #5 | 2 1/2 | 2 7/8 | 2 1/2 | 1 7/8 | 1 7/8 | 2 1/4 | 3 | 1 5/8 |
| Discrete Gage #6 | | | | 2 | 1 3/4 | 1 3/4 | 2 1/4 | 1 3/4 |
| Discrete Gage #7 | | | | | 2 | 1 3/4 | 2 1/2 | 2 |
| Discrete Gage #8 | | | | | 2 1/4 | 1 3/4 | 2 | 1 5/8 |
| Re-Calculated Mean, inches | 3.05 | 2.83 | 2.78 | 1.81 | 1.95 | 1.84 | 2.25 | 1.80 |
| | | | | | | | | |

WTCI-682-P

682-P

| Date of Report | 4/28/1998 | 4/28/1998 | 12/27/1996 | 12/27/1996 | 12/27/1996 | 8/24/1998 | 8/24/1998 | 8/24/1998 |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| To: | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz |
| From: | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard |
| Building | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC |
| Floor | 93 | 93 | 94 | 94 | 94 | 95 | 95 | 95 |
| Location/Test Area | 239 east | 435 west | 329 east | 233 north | 131 west | 329 south | 235 east | 429 west |
| Minimum Thickness Required | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Reported Mean, inches | 1.89 | 2.92 | 4.28 | 3.80 | 4.33 | 2.16 | 2.41 | 3.30 |
| Discrete Gage #1 | 2 | 2 7/8 | 4 1/4 | 4 | 4 1/2 | 2 3/4 | 1 7/8 | 3 1/8 |
| Discrete Gage #2 | 1 7/8 | 3 | 4 1/4 | 3 3/4 | 4 3/4 | 1 7/8 | 2 1/8 | 3 1/8 |
| Discrete Gage #3 | 1 3/4 | 2 3/4 | 4 1/8 | 3 3/4 | 4 1/4 | 2 3/8 | 2 3/8 | 3 3/8 |
| Discrete Gage #4 | 2 1/4 | 3 1/4 | 4 1/2 | 3 1/2 | 4 1/8 | 2 3/8 | 2 1/4 | 3 3/8 |
| Discrete Gage #5 | 2 1/8 | 2 3/4 | | 4 | 4 | 1 7/8 | 3 | 3 1/8 |
| Discrete Gage #6 | 1 3/4 | 3 1/2 | | | | 1 7/8 | 2 3/4 | 3 1/4 |
| Discrete Gage #7 | 1 3/4 | 2 1/2 | | | | 2 | 2 3/8 | 4 |
| Discrete Gage #8 | 1 5/8 | 2 3/4 | | | | 2 1/8 | 2 1/2 | 3 |
| Re-Calculated Mean, inches | 1.89 | 2.92 | 4.28 | 3.80 | 4.33 | 2.16 | 2.41 | 3.30 |
| | | | | | | | | |

| | | | | | | | |
|-----------------------------------|-------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Date of Report | 10/22/1998 | 10/22/1998 | 10/22/1998 | 10/22/1998 | 10/22/1998 | 10/22/1998 | 11/19/1998 |
| To: | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz |
| From: | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey | John Bullard |
| Building | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC |
| Floor | 96 | 96 | 96 | 97 | 97 | 97 | 98 |
| Location/Test Area | 239 east | 143 north | 439 west | 331 south | 241 east | 143 north | 113 north |
| Minimum Thickness Required | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Reported Mean, inches | 3.03 | 3.16 | 3.16 | 2.64 | 2.17 | 2.22 | 2.91 |
| Discrete Gage #1 | Discrete measurements not available | | | | | | 3 |
| Discrete Gage #2 | | | | | | | 2 3/4 |
| Discrete Gage #3 | | | | | | | 2 1/2 |
| Discrete Gage #4 | | | | | | | 3 1/4 |
| Discrete Gage #5 | | | | | | | 2 3/4 |
| Discrete Gage #6 | | | | | | | 2 1/2 |
| Discrete Gage #7 | | | | | | | 2 3/4 |
| Discrete Gage #8 | | | | | | | 3 3/4 |
| Re-Calculated Mean, inches | | | | | | | 2.91 |
| | | | | | | | |

| Date of Report | 11/19/1998 | 11/19/1998 | 11/20/1998 | 11/20/1998 | 11/20/1998 | 11/20/1998 | 11/20/1998 | 11/20/1998 |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| To: | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz |
| From: | John Bullard | John Bullard | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey |
| Building | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC | 1 WTC |
| Floor | 98 | 98 | 99 | 99 | 99 | 100 | 100 | 100 |
| Location/Test Area | 232 east | 325 south | 427 west | 339 south | 229 east | 433 west | 337 south | 153 north |
| Minimum Thickness Required | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Reported Mean, inches | 2.83 | 2.52 | 2.84 | 2.22 | 2.23 | 2.80 | 3.17 | 3.38 |
| Discrete Gage #1 | 2 3/4 | 2 3/8 | 2 1/2 | 2 1/2 | 2 1/8 | 3 1/8 | 3 1/2 | 3 1/2 |
| Discrete Gage #2 | 2 1/4 | 2 1/2 | 2 3/4 | 2 3/8 | 2 1/4 | 3 1/4 | 3 1/2 | 2 1/2 |
| Discrete Gage #3 | 2 1/2 | 2 3/4 | 2 5/8 | 2 1/8 | 2 1/8 | 2 1/2 | 3 1/4 | 3 1/4 |
| Discrete Gage #4 | 3 1/4 | 2 3/4 | 2 5/8 | 2 1/8 | 2 1/4 | 3 | 1 3/4 | 3 3/4 |
| Discrete Gage #5 | 3 | 1 3/4 | 3 | 2 1/8 | 2 3/8 | 3 | 3 1/2 | 3 3/8 |
| Discrete Gage #6 | 2 7/8 | 2 | 3 1/2 | 2 1/8 | 2 | 2 1/2 | 4 | 3 1/2 |
| Discrete Gage #7 | 3 | 3 | 2 7/8 | 1 3/4 | 2 1/2 | 2 | 2 1/2 | 3 3/8 |
| Discrete Gage #8 | 3 | 3 | 2 7/8 | 2 5/8 | 2 1/4 | 3 | 3 3/8 | 3 3/4 |
| Re-Calculated Mean, inches | 2.83 | 2.52 | 2.84 | 2.22 | 2.23 | 2.80 | 3.17 | 3.38 |
| | | | | | | | | |

| Date of Report | 6/9/1998 | 6/9/1998 | 6/9/1998 | 4/3/1998 | 4/3/1998 | 7/5/2000 | 7/5/2000 | 7/5/2000 | 5/5/1999 |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| To: | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz |
| From: | John Bullard | John Bullard | John Bullard | John Bullard | John Bullard | Dorian Bailey | Dorian Bailey | Dorian Bailey | Dorian Bailey |
| Building | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC |
| Floor | 77 | 77 | 77 | 78 | 78 | 88 | 88 | 88 | 89 |
| Location/Test Area | 121 east | 353 west | 303 west | 327 east | 157 west | 213 north | 157 west | 315 east | 329 east |
| Minimum Thickness Required | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Reported Mean, inches | 2.67 | 2.11 | 2.60 | 2.50 | 2.75 | 1.89 | 2.36 | 2.13 | 2.80 |
| Discrete Gage #1 | 3 1/8 | 2 | 2 5/8 | 2 1/2 | 2 1/2 | 2 | 2 3/4 | 2 1/4 | 2 1/4 |
| Discrete Gage #2 | 2 1/2 | 1 3/4 | 2 | 2 1/2 | 3 1/2 | 1 1/2 | 2 3/4 | 2 1/2 | 3 3/4 |
| Discrete Gage #3 | 2 3/4 | 2 5/8 | 2 1/3 | 2 1/4 | 3 1/4 | 1 3/4 | 2 1/2 | 2 1/2 | 3 |
| Discrete Gage #4 | 2 1/2 | 2 1/2 | 2 3/8 | 2 | 2 | 2 1/4 | 2 3/4 | 2 | 2 7/8 |
| Discrete Gage #5 | 2 1/2 | 1 7/8 | 3 | 2 1/4 | 2 7/8 | 2 1/4 | 2 1/2 | 2 1/2 | 3 |
| Discrete Gage #6 | 2 3/4 | 2 1/2 | 2 7/8 | 3 | 2 3/4 | 2 | 1 1/2 | 1 3/4 | 2 1/2 |
| Discrete Gage #7 | 2 7/8 | 2 1/4 | 3 1/3 | 3 | 2 7/8 | 1 1/2 | 2 3/4 | 2 1/2 | 2 1/4 |
| Discrete Gage #8 | 2 3/4 | 1 3/4 | 2 3/8 | 2 3/4 | 2 1/4 | 1 7/8 | 1 7/8 | 1 3/4 | 2 3/4 |
| Discrete Gage #9 | | | | 2 1/4 | | | | | |
| Discrete Gage #10 | | | | 2 1/2 | | | | | |
| Discrete Gage #11 | | | | | | | | | |
| Discrete Gage #12 | | | | | | | | | |
| Re-Calculated Mean, inches | 2.67 | 2.11 | 2.60 | 2.50 | 2.75 | 1.89 | 2.36 | 2.13 | 2.80 |

| Date of Report | 5/5/1999 | 5/5/1999 | 2/26/1998 | 2/26/1998 | 2/26/1998 |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|
| To: | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz | Eli Moscovitz |
| From: | Dorian Bailey | Dorian Bailey | John Bullard | John Bullard | John Bullard |
| Building | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC |
| Floor | 89 | 89 | 92 | 92 | 92 |
| Location/Test Area | 231 north | 127 west | 335 east | 421 south | 127 west |
| Minimum Thickness Required | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Reported Mean, inches | 2.70 | 2.95 | 2.83 | 3.00 | 2.67 |
| Discrete Gage #1 | 2 1/4 | 2 7/8 | 2 1/4 | 2 | 2 3/4 |
| Discrete Gage #2 | 2 | 2 7/8 | 2 1/4 | 2 1/2 | 2 3/4 |
| Discrete Gage #3 | 2 3/4 | 4 | 2 | 3 1/4 | 2 3/4 |
| Discrete Gage #4 | 2 1/4 | 3 1/4 | 2 | 2 3/4 | 2 3/4 |
| Discrete Gage #5 | 3 1/4 | 2 1/2 | 3 1/2 | 4 | 2 1/4 |
| Discrete Gage #6 | 4 | 2 3/8 | 3 | 3 1/2 | 2 3/4 |
| Discrete Gage #7 | 2 3/8 | 2 7/8 | 3 1/4 | 2 1/4 | 2 1/2 |
| Discrete Gage #8 | 2 3/4 | 2 7/8 | 4 1/2 | 3 3/4 | 2 3/4 |
| Discrete Gage #9 | | | 2.75 | 3.00 | 2.75 |
| Discrete Gage #10 | | | | | |
| Discrete Gage #11 | | | | | |
| Discrete Gage #12 | | | | | |
| Re-Calculated Mean, inches | 2.70 | 2.95 | 2.83 | 3.00 | 2.67 |

| Date of Report | 3/1/1995 | 3/1/1995 | 3/1/1995 | 9/7/1995 | 9/7/1995 | 9/7/1995 |
|-----------------------------------|-------------------------------------|---------------|--------------|-------------------------------------|---------------------------------------|-------------------------------------|
| To: | Tom O'Connor | Tom O'Connor | Tom O'Connor | Tom O'Connor | Tom O'Connor | Tom O'Connor |
| From: | Sy Solomon | Sy Solomon | Sy Solomon | John Bullard | John Bullard | John Bullard |
| Building | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC | 2 WTC |
| Floor | 96 | 96 | 96 | 97 | 97 | 97 |
| Location/Test Area | Area #1 West | Area #2 North | Area #3 East | 315 22 feet west of east wall | 217 12 feet south of north wall | 113 30 feet east of west wall |
| Minimum Thickness Required | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Reported Mean, inches | 0.90 | 1.75 | 1.90 | 1.42 | 0.75 | 1.25 |
| Discrete Gage #1 | Discrete measurements not available | | | | | |
| Discrete Gage #2 | | | | | | |
| Discrete Gage #3 | | | | | | |
| Discrete Gage #4 | | | | | | |
| Discrete Gage #5 | | | | | | |
| Discrete Gage #6 | | | | | | |
| Discrete Gage #7 | | | | | | |
| Discrete Gage #8 | | | | | | |
| Discrete Gage #9 | | | | | | |
| Discrete Gage #10 | | | | | | |
| Discrete Gage #11 | | | | | | |
| Discrete Gage #12 | | | | | | |
| Re-Calculated Mean, inches | | | | | | |

WTC I-682-P